Maine Lake TMDLs - What, Why, Where, and When?

You are no doubt wondering what the acronym 'TMDL' represents and what it is all about. TMDL is actually short for 'Total Maximum Daily Load.' This acknowledgment probably does little to clarify TMDLs in most people's minds. However, replace 'daily' with 'annual' and insert 'phosphorus' before 'load' and it may begin to make more sense to more people.

Simply stated, excess nutrients (primarily phosphorus) in lakes promote nuisance algae growth/blooms - resulting in the violation of water quality standards. A TMDL is prepared to estimate the total amount of dissolved phosphorus that a lake can accept (annually) without harming water quality. Historically, development of TMDLs was first mandated by the Clean Water Act in 1972 - and was applied primarily to point sources of water pollution. As a result of public pressure to further clean-up water bodies - lake and stream TMDLs are now being prepared for Non-Point Sources (NPS) of water pollution.

Nutrient enrichment of lakes through excess total phosphorus originating from watershed soil erosion has been generally recognized as the primary source of NPS pollution. Major land use activities contributing to the phosphorus load in lakes include residential-commercial developments, agriculture, roadways, and commercial forestry. Statewide, there are approximately 35 lakes which do not meet water quality standards due to excessive amounts of total phosphorus.

The first Maine lake TMDL was developed (1995) for Cobbossee Lake by the Cobbossee Watershed District (CWD) - under contract with Maine DEP and US-EPA. Recently, TMDLs have been approved by EPA for Madawaska Lake (Aroostook County), and Sebasticook Lake (Penobscot County). TMDLs are presently being prepared by ME-DEP, with assistance from the Maine Association of Conservation Districts, for East Pond (in review), China Lake, Mousam Lake, and Unity Pond. This coming summer and fall (2001), TMDLs for Annabessacook Lake and Pleasant Pond (Kennebec and Sagadahoc counties) will be developed by CWD under contract with Maine DEP and US-EPA.

TMDL reports are based on available water quality data including seasonal (in-lake) measures of total phosphorus, chlorophyll-a, Secchi disk transparencies, and dissolved oxygen-water temperature profiles. Actual reports include: a lake description; watershed GIS assessment and estimation of NPS pollutant sources; identification of a total phosphorus target goal (acceptable amount); allocation of watershed/land-use phosphorus loadings - while addressing 'margin of safety' (uncertainty) concerns and seasonal variation; as well as a public participation component to allow for public review.

TMDLs are important tools for maintaining and protecting acceptable lake water quality. They are primarily designed to 'get a handle' on the magnitude of the NPS pollution problem and to develop plans for implementing Best Management Practices (BMPs) to address the problem. Development of phosphorus-based lake TMDLs are not intended by Maine DEP to be used for regulatory purposes. Landowners and watershed groups are eligible to receive technical and financial assistance from state and federal natural resource agencies to reduce watershed total phosphorus loadings to the lake.

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